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OF PLAGUE CULTURES UNDER THE INFLUENCE OF PLAGUE BACTERIOPHAGE

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INFLUENCE OF THE COMPOSITION OF THE NUTRIENT MEDIUM ON THE COURSE OF LYSIS
OF PLAGUE CULTURES UNDER THE INFLUENCE OF PLAGUE BACTERIOPHAGE

Following is the translation of an article by T. P. Kudinova, published in the Russian-language periodical Materialy Nauchnoy Konferentsii po Prirodnoy Ochagovosti i Profilaktike Chumy (Materials from the Scientific Conference on the Natural Focalness and Prophylaxis of Plague) Alma-Ata, Feb., 1963, pages 129--130. Translation performed by Sp/7 Charles T. Ostertag, Jr.

A study was made on the course of lysis of a plague microbe culture under the influence of plague bacteriophage in a medium, poor in nutrient substances.

Into a physiological solution we added a culture of the plague microbe (EV strain), plague bacteriophage and Hottinger broth up to a content of it in the medium of 1:25 (with a calculation of the broth, introduced with the bacteriophage). As a control we took pure broth with the same amount of bacteriophage and microbial cells. After specific intervals of time a determination was made of the content of viable microbial cells in a unit of volume of the medium (by the method of inoculation on agar following preliminary neutralization of the bacteriophage with the neutral red dye) and the titer of bacteriophage was determined.

After one day following inoculation it was possible to isolate individual microbial cells from the broth with the plague bacteriophage only in rare cases. In the medium consisting of the physiological solution with the addition of 1:25 broth to it, the number of viable cells increased steadily, and after five--six days exceeded their initial content in the medium by 10--15 and even several dozen times, just as lysis of a plague culture takes place under the influence of pseudotuberculosis bacteriophage.

At the same time the increase in the titer of bacteriophage in a physiological solution with broth did not differ essentially from the same in broth, and also remained the same or exceeded by one dilution when titrated according to the method of Appelman.